DEM'YANOVSKAYA, Ye.I.

Using induced potentials in studying the grade composition of coals in the Lvov-Volyn Basin. Geofiz.sbor. no.1:112-115 '62. (MIRA 16:3)

1. L'vovskiy filial Instituta geofiziki AN UkrSSR.
(Lvov-Volyn Basin—Coal analysis)

DEM'YANOVSKAYA, Ye.I.

Using logging to solve some hydroelectrical problems in the Lvov-Volyn' Basin. Geofiz. sbor. no.4:66-70 '63. (MIRA 16:9)

1. L'vovskiy filial Instituta geofiziki AN UkrSSR.

L 43733-66 EWT(1)/EWT(m)/EWP(w)/EWP(f)/EWP(v)/T-2/EWP(k) IJP(c) WW/EM

ACC NR: AP6027621 (N) SOURCE CODE: UR/0145/66/000/006/0044/0052

AUTHOR: Dem'yanushko, I. V. (Aspirant) 56 B

ORG: Moscow Physicotechnical Institute (Moskovskiy fiziko-tekhnicheskiy institut)

TITLE: State of stress of high-speed centrifugal compressor rotors 23

SOURCE: IVUZ. Mashinostroyeniye, no. 6, 1966, 44-52

TOPIC TAGS: centrifugal compressor, compressor rotor, MECHANICAL STRESS

ABSTRACT: An improved calculation method is presented for evaluating the state of stress in high-speed centrifugal compressor rotors. The rotor is assumed to be a two-plate variable-thickness disk with radial blades whose work is taken into account. Using the variational method, basic differential equations are derived for the deformation of the disk, and also boundary conditions obtained for the calculation of close-type centrifugal turbine rotors. A system of three differential matrix equations is then reduced to an integral matrix equation which is solved by the method of successive approximations with the aid of the ETsVM BESM-3M computer. A sample calculation is included. Orig. art. has: 5 figures, 1 table, and 36 formulas. [BP]

SUB CODE: 13 / SUBM DATE: 10Feb66/ ORIG REF: 005

Card 1/1 JS UDC: 621.515

58/49T54

DEM'YANYUK, B. A.

USSR/Engineering
Boilers
Furnaces

Jun 49

"The Combustion of Waste Products of Coal Enrichment in Shaft Mill Furnaces," Ye. A. Nitskevich, Engr, B. A. Dem'yanyuk, 5 pp

"Za Ekon Top" No 6 , pp 4-8.

Among conditions found for combustion were: a milling fineness equal to that of the residue in a No 70 sieve; temperature of the drying agent not to exceed 400°C; and screening of the chamber calculated with allowance

[redacted] 58/49T54

USSR/Engineering (Contd) Jun 49

for providing a temperature of 1,050 to 1,100° C in front of the first row of boiler pipes.

[redacted] 58/49T54

DEM'YANYUK, B.A.

F M

5005. COMBUSTION OF WASTE PRODUCTS OF BENEFICIATION IN PULVERIZED COAL FURNACES. Dem'yanyuk, B. A. and Nitskevich, E. A. (Za Ekon. Topliva (Fuel Econ.), 1950, (2), 9-13). Results of full scale trials in which boilers using anthracite duff were changed over to products having ash contents up to 45%. Operation was satisfactory. Improved efficiencies were obtained, particularly where blast furnace gas was used in conjunction with the solid fuel. (L).

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PA 32/49T47

DEM'YANYUK, F. S.

USSR/Engineering Nov/Dec 48
Machinery - Construction

"Review of 'Machine Building,' Encyclopedic Handbook Volume V," F. S. Dem'yanyuk, Head Technologist, ZIS, 1 p

"Vest Inzhener i Tekhnik" No 6

Volume deals with technology of machine production. Reviewer displays certain lack of enthusiasm for plan and execution of book. Mentions various defects. Published by Mashgiz, Moscow, 1948.

32/49T47

DEM'YANYUK, [illegible]

36377 Zavod peredovoy tekhnologii (Mosk. Avtomob. Zavod im. Stalina.) Mekhanizatsiya trudoyemkikh i tyazhelykh rabot, 194[illegible], No. 11, S. 10-16

SO: Letopis' Zhurnal'nykh Statey, No. 49, 1949

DEM'YANYUK, Prof F. Aug 52

USSR/Metallurgy - Metal Conservation, Machine Building

"Basic Trends in Metal Conservation in Machine Building," Prof F. Dem'yanyuk, Stalin Prize Laureate

Za Ekon Materialov, No 1, pp 22-30

General review of measures for decreasing consumption of metal in machine manufacturing process with emphasis on reducing wt of machines by more precise design. Discusses several examples of fabricating various auto parts. States use of ceramic cutters of great importance for saving alloying elements utilized in hard alloys, but quality of these cutters is still low, and their improvement requires further research and exptl work.

Source #264T52

DEM'YANYUK, F. S.

"Production line in mass machine construction." S. D. Stakheyev. Reviewed by F. S. Dem'yanyuk. Sov. Kniga No 2, 1952.

MASLOV, D.P.; SASOV, V.V.; NIZHANSKIY, P.G.; DEM'YANYUK, F.S., professor, retsenzent; LUR'YE, G.B., professor, redaktor.

[Technology of automobile and tractor construction] Tekhnologiia avtotraktorostroeniia. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. i sudostroit. lit-ry, 1953. 628 p. (MLRA 7:6)
(Automobiles--Design and construction) (Tractors--Design and construction)

DEM'YANYUK, F. S.

USSR/Miscellaneous - Agricultural Machinery

Card 1/1

Author : Dem'yanyuk, F. S.

Title : Automatization of Technological Processes in the Machine Building Industry

Periodical : Vest. AN SSSR, Ed. 2, 95-100, Feb/1954

Abstract : The author reports on the directives adopted by XIX Congress of the All-Union Communist Party. The Congress adopted the directives for the Fifth Five-Year Plan which include provisions for further development of agriculture, light and food industry and supplying of Collective Farms with required machinery.

Institution : ....

Submitted : ....

Name:	DEM'YANYUK, Foma Semenovich
Dissertation:	Technological bases of assembly-line and automated production
Degree:	Doc Tech Sci
Affiliation:	All-Union Correspondence Polytechnic Inst
Defense Date, Place:	28 Mar 56, Council of Inst of Science of Machines, Acad Sci USSR
Certification Date:	16 Mar 57
Source:	BMVO 13/57

DEM'YANYUK, F.S.

ANDREYEV, A.B.; ANTONOV, A.I.; ARAPOV, P.P., BARMASH, A.I., BEDNYAKOVA, A.B.; BENIN, G.S.; BERESNEVICH, V.V.; BERNSHTEYN, S.A.; BITYUTSKOV, V.I.; BLYUMENBERG, V.V.; BONCH-BRUYEVICH, N.D.; BORMOTOV, A.D.; BULGAKOV, N.I.; VEKSLER, B.A.; GAVRILENKO, I.V.; GENDLER, Ye.S., [deceased]; GERLIVANOV, N.A., [deceased]; GIBSHMAN, Ye.Ye.; GOLDOVSKIY, Ye.M.; GORBUNOV, P.P.; GORYAINOV, F.A.; GRINBERG, B.G.; GRYUNER, V.S.; DANOVSKIY, N.F.; DZEVUL'SKIY, V.M., [deceased]; DREMAYLO, P.G.; DYBETS, S.G.; D'YACHENKO, P.F.; DYURNBAUM, N.S., [deceased]; YEGORCHENKO, B.F. [deceased]; YEL'YASHKEVICH, S.A.; ZHEREBOV, L.P.; ZAVEL'SKIY, A.S.: ZAVEL'SKIY, F.S.; IVANOVSKIY, S.R.; ITKIN, I.M.; KAZHDAN, A.Ya.; KAZHINSKIY, B.B.; KAPLINSKIY, S.V.: KASATKIN, F.S.; KATSAUROV, I.N.; KITAYGORODSKIY, I.I.; KOLESNIKOV, I.F.; KOLOSOV, V.A.; KOMAROV, N.S.; KOTOV, B.I.; LINDE, V.V.; LEBEDEV, H.V.; LEVITSKIY, N.I.; LOKSHIN, Ya.Yu; LUTTSAU, V.K.; MANNERBERGER, A.A.; MIKHAYLOV, V.A.; MIKHAYLOV, M.M.; MURAV'YEV, I.M.; NYDEL'MAN, G.E.; PAVLYSHKOV, L.S.; POLUYANOV, V.A.; POLYAKOV, Ye.S.; POPOV, V.V.; POPOV, N.I.; RAKHLIN, I.Ye., RZHEVSKIY, V.V.; ROZENBERG, G.V.; ROZENTRETER, B.A.; ROKOTYAN, Ye.S.; RUKAVISHNIKOV, V.I.; RUTOVSKIY, B.N. [deceased]; RYVKIN, P.M.; SMIRNOV, A.P.; STEPANOV, G.Yu, STEPANOV, Yu.A.; TARASOV, L.Ya.; TOKAREV, L.I.; USPASSKIY, P.P.; FEDOROV, A.V.; FERE, N.E.; FRENKEL', N.Z.; KHEYFETS, S.Ya.; KHLOPIN, M.I.; KHODOT, V.V.; SHAMSHUR, V.I.; SHAPIRO, A.Ye.; SHATSOV, N.I.; SHISHKINA, N.N.; SHOR, B.R.; SHPICHENETSKIY, Ye.S.; SHPRINK, B.E.; SHTERLING, S.Z.; SHUTYY, L.R.; SHUKHGAL'TER, L.Ya.; ERVAYS, A.V.;

(Continued on next card)

ANDREYEV, A.B. (continued) .... Card 2.

YAKOVLEV, A.V.; ANDREYEV, Ye.S., retsenzent, redaktor; BERKEN-GEYM, B.M., retsenzent, redaktor; BERMAN, L.D., retsenzent, redaktor; BOLTINSKIY, V.N., retsenzent, redaktor; BONCH-BRUYEVICH, V.L., retsenzent, redaktor; VELLER, M.A., retsenzent, redaktor; VINOGRADOV, A.V., retsenzent, redaktor; GUDTSOV, N.T., retsenzent, redaktor; DEGTYAREV, I.L., retsenzent, redaktor; DEM'YANYUK, F.S., retsenzent; redaktor; DOBROSMYSLOV, I.N., retsenzent, redaktor; YELANCHIK, G.M. retsenzent, redaktor; ZHEMOCHKIN, D.N., retsenzent, redaktor; SHURAVCHENKO, A.N., retsenzent, redaktor; ZLODEYEV, G.A., retsenzent, redaktor; KAPLUNOV, R.P., retsenzent, redaktor; KUSAKOV, M.M., retsenzent, redaktor; LEVINSON, L.Ye., [deceased] retsenzent, redaktor; MALOV, N.N., retsenzent, redaktor; MARKUS, V.A. retsenzent, redaktor; METELITSYN, I.I., retsenzent, redaktor; MIKHAYLOV, S.M., retsenzent; redaktor; OLIVETSKIY, B.A., retsenzent, redaktor; PAVLOV, B.A., retsenzent, redaktor; PANYUKOV, N.P., retsenzent, redaktor; PLAKSIN, I.N., retsenzent, redaktor; RAKOV, K.A. retsenzent, redaktor; RZHAVINSKIY, V.V., retsenzent, redaktor; RINBERG, A.M., retsenzent; redaktor; ROGOVIN, N. Ye., retsenzent, redaktor; RUDENKO, K.G., retsenzent, redaktor; RUTOVSKIY, B.N., [deceased] retsenzent, redaktor; RYZHOV, P.A., retsenzent, redaktor; SANDOMIRSKIY, V.B., retsenzent, redaktor; SKRAMTAYEV, B.G., retsenzent, redaktor; SOKOV, V.S., retsenzent, redaktor; SOKOLOV, N.S., retsenzent, redaktor; SPIVAKOVSKIY, A.O., retsenzent, redaktor; STRAMENTOV, A.Ye., retsenzent, redaktor; STRELETSKIY, N.S., retsenzent, redaktor;

(Continued on next card)

ANDREYEV, A.V., (continued) .... Card 3.

TRET'YAKOV, A.P., retsenzent, redaktor; FAYERMAN, Ye.M., retsenzent, redaktor; KHACHATYROV, T.S., retsenzent, redaktor; CHERNOV, H.V., retsenzent, redaktor; SHERGIN, A.P., retsenzent, redaktor; SHESTO-PAL, V.M., retsenzent, redaktor; SHESHKO, Ye.F., retsenzent, redaktor; SHCHAPOV, N.M., retsenzent, redaktor; YAKOBSON, M.O., retsenzent, redaktor; STEPANOV, Yu.A., Professor, redaktor; DEM'YANYUK, F.S., professor, redaktor; ZNAMENSKIY, A.A., inzhener, redaktor; PLAKSIN, I.N., redaktor; RUTOVSKIY, B.N. [deceased] doktor khimicheskikh nauk, professor, redaktor; SHUKHGAL'TER, L. Ya, kandidat tekhnicheskikh nauk, dotsent, redaktor; BRESTINA, B.S., redaktor; ZNAMENSKIY, A.A., redaktor.

(Continued on next card)

ANDREYEV, A.V. (continued) .... Card 4.

[Concise polytechnical dictionary] Kratkii politekhnicheskii slovar'. Redaktsionnyi sovet; IU.A.Stepanov i dr. Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1955. 1136 p. (MLRA 8:12)

1. Chlen-korrespondent AN SSSR (for Plaksin)
(Technology--Dictionaries)

DEM'YANYUK, FOMA SEMENOVICH

DEM'YANYUK, Foma Semenovich, professor, laureat Stalinskikh premiy; ISLANKINA, T.F., redaktor; ISLENT'YEVA, P.G., tekhnicheskiy redaktor

[Technical progress in machine building] Tekhnicheskii progress v mashinostroenii. Moskva, Izd-vo "Znanie," 1956. 45 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser. 4, no.1) (MIRA 9:2)

(Machinery industry)

ANTIPOV, K.F., inzhener; BALAKSHIN, B.S., doktor tekhnicheskikh nauk, professor; BARYLOV, G.I., inzhener; BEYSEL'MAN, R.D., inzhener; BERDICHEVSKIY, Ya. G., inzhener; BOBKOV, A.A., inzhener; KALININ, M.A., kandidat tekhnicheskikh nauk; KOVAN, V.M., doktor tekhnicheskikh nauk, professor; KORSAKOV, V.S., doktor tekhnicheskikh nauk; KOSILOVA, A.G., kandidat tekhnicheskikh nauk; KUDRYAVTSEV, N.T., Doktor khimicheskikh nauk, professor; KURYSHEVA, Ye.S., inzhener; LAKHTIN, Yu.M., doktor tekhnicheskikh nauk, professor; NAYERMAN, M.S., inzhener; NOVKOV, M.P., kandidat tekhnicheskikh nauk, PARIYSKIY, M.S., inzhener; PEREPONOV, M.N., inzhener; POPILOV, L.Ya. inzhener; POPOV, V.A., kandidat tekhnicheskikh nauk; SAVERIN, M.M. doktor tekhnicheskikh nauk, professor, SASOV,V.V., kandidat tekhnicheskikh nauk; SATEL' E.A., doktor tekhnicheskikh nauk, professor, SOKOLOVSKIY, A.P., doktor tekhnicheskikh nauk, professor, (deceased) STANKEVICH, V.G., inzhneer; FRUMIN, Yu.L. inzhener; KHRAMOY, M.I., inzhener, TSEYTLIN,L.B., inzhener, SHUKHOV, Yu.V. kandidat tekhnicheskikh nauk; BABKIN, S.I., kandidat tekhnicheskikh nauk; VOLKOV, S.I., kandidat tekhnicheskikh nauk; GORODETSKIY, I.Ye., doktor tekhnicheskikh nauk; professor, GOROSHKIN, A.K., inzhener; DOSCHATOV, V.V., kandidat tekhnicheskikh nauk; ZAMALIN, V.S., inzhener, ISAYEV, A.I., doktor tekhnicheskikh nauk; professor, KEDROV, S.M., kandidat tekhnicheskikh nauk; MALOV, A.N., kandidat tekhnicheskikh nauk; MARDANYAN, M.Ye. Inzhener; PANCHENKO, K.P., kandidat tekhnicheskikh nauk; SEKRETEV, D.M., inzhener; STAYEV, K.P., kandidat tekhnicheskikh nauk; SYROVATCHENKO, P.V., inzhener; TAURIT, G.E., inzhener; EL'YASHEVA, M.A., kandidat tekhnicheskikh nauk.

(continued on next card)

ANTIPOV, K.F. ---(continued) Card 2.
GRANOVSKIY, G.I., redaktor; D[illegible], redaktor; [illegible], redaktor; CHARNKO, D.V., redaktor; [illegible] [deceased]; SOKOLOVA, T.F., tekhnicheskiy redaktor

[Machine builder's manual] Spravochnik tekhnologa mashinostroitelia; v dvukh tomakh, red.sovet V.M. [illegible] i dr. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry. Vol. 1. (Pod red. A.G.Kosilovoi [illegible]) 1956. 584 p. [illegible]
(Machinery industry)

SOV/112-57-5-10859

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1957, Nr 5, p 183 (USSR)

AUTHOR: Dem'yanyuk, F. S.

TITLE: Principles of Design and Automation of Technological Processes (Printsipy proyektirovaniya i avtomatizatsii tekhnologicheskikh protsessov)

PERIODICAL: V sb.: Avtomatizatsiya tekhnol. protsessov v mashinostr. Obrabotka metallov rezaniyem i obshchiye vopr. avtomatizatsii, M., 1956, pp 136-154

ABSTRACT: Bibliographic entry.

Card 1/1

DEM'YANYUK, F.S., prof.

Automation of production processes is the main trend in technological development. Mashinostroitel' no.1:4-13 N '56. (MIRA 12:1)

(Automation)

SOV/112-58-2-2772

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1958, Nr 2, p 154 (USSR)

AUTHOR: Dem'yanyuk, F. S.

TITLE: Fundamental Problems of Developing the Design Methods for Multitool Semiautomatic Equipment and Automatic Lines (Osnovnyye voprosy razvitiya metodov rascheta i proyektirovaniya mnogoinstrumentnykh poluavtomatov i avtomaticheskikh liniy)

PERIODICAL: Sessiya AN SSSR po nauchn. probl. avtomatiz. proiz-va, 1956, T. 6. M., AS USSR, 1957, pp 16-44

ABSTRACT: Bibliographic entry.

Card 1/1

DEM'YANYUK F.S. (Prof.)

Analysis of methods of automation of technological processes of machine building.

paper read at the Session of the Acad. Sci. USSR, on Scientific Problems of Automatic Production, 15-20 October 1956
Avtomatika i telemekhanika, No. 2 p. 182-192, 1957

9015229

DEM'YANYUK, F.S., doktor tekhn.nauk, prof.

Answer to S.N.Vlasov's article. Mashinostroitel' no.12:3-4 D '57. (MIRA 10:12)

(Automatic control) (Assembly line methods)

DEM'YANYUK, F. S.

ANTIPOV, K.F., inzh.; BALAKSHIN, B.S., prof., doktor tekhn.nauk; BARYLOV, G.I., inzh.; BEYZEL'MAN, R.D., inzh.; BERDICHEVSKIY, Ya.G., inzh.; BOBKOV, A.A., inzh.; KALININ, M.A., kand.tekhn.nauk; KOVAN, V.M., prof., doktor tekhn.nauk; KORSAKOV, V.S., doktor tekhn.nauk; KOSILOVA, A.G., kand.tekhn.nauk; KUDRYAVTSEV, N.T., prof., doktor khim.nauk; KURYSHEVA, Ye.S., inzh.; LAKHTIN, Yu.M., prof., doktor tekhn.nauk; NAYERMAN, M.S., inzh.; NOVIKOV, M.P., kand.tekhn.nauk; PARIYSKIY, M.S., inzh.; PEREPONOV, M.N., inzh.; POPILOV, L.Ya., inzh.; POPOV, V.A., kand.tekhn.nauk; SAVERIN, M.M., prof., doktor tekhn.nauk; SASOV, V.V., kand.tekhn.nauk; SATEL', E.A., prof., doktor tekhn.nauk; SOKOLOVSKIY, A.P., prof., doktor tekhn.nauk [deceased]; STANKEVICH, V.G., inzh.; FRUMIN, Yu.L., inzh.; KHRAMOY, M.I., inzh.; TSEYTLIN, L.B., inzh.; SHUKHOV, Yu.V., kand.tekhn.nauk; MARKUS, M.Ye., inzh., red. [deceased]; GRANOVSKIY, G.I., red.; DEM'YANYUK, F.S., red.; ZUBOK, V.N., red.; MALOV, A.N., red.; NOVIKOV, M.P., red.; CHARNKO, D.V., red.; KARGANOV, V.G., inzh., red. graficheskikh rabot; SOKOLOVA, T.F., tekhn.red.

[Manual of a machinery designer and constructor; in two volumes] Spravochnik tekhnologa-mashinostroitelia; v dvukh tomakh. Glav. red. V.M.Kovan. Chleny red.soveta B.S.Balakshin i dr. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry. Vol.1. Pod red. A.G.Kosilovoi. 1958. 660 p. (MIRA 13:1)

(Mechanical engineering--Handbooks, manuals, etc.)

BARDIN, I.P., akademik; DYMOV, A.M., prof., doktor khim.nauk; DIKUSHIN, V.I.; akademik; TSELIKOV, A.I.; OTLEV, I.A., inzh. (g. Khimki, Moskovskoy oblasti).; DEM'YANYUK, F.S., prof., doktor tekhn.nauk; RYBKIN, A.P., prof., doktor tekhn.nauk; YAKUSHEV, A.I., prof., dokt. tekhn.nauk; KIDIN, I.N., prof. doktor tekhn.nauk; KOROTKOV, V.P., dots., kand. tekhn.nauk; SHUKHGAL'TER, L.Ya., dots., kand.tekhn.nauk; KUKIN, G.N., prof., doktor tekhn.nauk.

Every specialist should know the principles of of standardization. Standartizatsiia 22 no.4:34-40 Jl-Ag '58. (MIRA 11:10)

1.Chlen-korrespondent AN SSSR (for TSelikov). 2.Predsedatel' tekhniko-ekonomicheskogo soveta Mosoblsovnarkhoza (for Rybkin). 3.Direktor Moskovskogo instituta stali imeni I.V. Stalina (for Kidin). 4.Direktor Moskovskogo vechernego mashinostroitel'nogo instituta (for Korotkov).
(Standardization--Study and teaching)

PHASE I BOOK EXPLOITATION 542

Dem'yanyuk, Foma Semenovich, Doctor of Technical Sciences, Professor

Tekhnologicheskiye osnovy potochnogo i avtomatizirovannogo proizvodstva (Technological Principles of Assembly-line and Automated Production) Moscow, Mashgiz, 1958. 694 p. 8,500 copies printed.

Reviewer: Stankevich, V.G., Engineer; Ed.: Shukhgal'ter, L.Ya., Candidate of Technical Sciences; Ed. of Publishing House: Shemshurina, Ye. A.; Tech. Ed.: El;kind, V.D.; Managing Ed. for literature on metal working and tool making: Beyzel'man, R.D.

PURPOSE: This book is intended for engineering personnel working in the machinery industry and in planning agencies, and for students in Vtuzes (technical colleges).

COVERAGE: The author of this book attempts to develop a scientific basis for line-production and automated production techniques through analysis and generalizations drawn from the experiences

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of leading plants in the machinery industry. The author summarizes the basic problems of standardization for engineering processes encompassing the manufacture of parts, and he describes the development of their optimum variants, including the choice of conditions (speeds and feeds) associated with cutting. The close interrelationship of technological and economic problems confronting automation is discussed, and formulas are developed by the author which take these economic factors into full consideration. No personalities are mentioned. There are 57 Soviet references.

TABLE OF CONTENTS:

Technological Principles of Assembly-line (Cont.) 542

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Technological Principles of Assembly-line (Cont.) 542

Card 8/14

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Technological Principles of Assembly-line (Cont.) 542

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AVAILABLE: Library of Congress

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JG/ksv
10-16-58

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000310110020-3"

IVANOV, Andrey Pavlovich, dotsent, kand.tekhn.nauk; DEM'YANYUK, F.S., prof., doktor tekhn.nauk, retsenzent; BERLIN, S.B., red.; RZHAVINSKIY, V.V., red.izd-va; GORDEYEVA, L.P., tekhn.red.; CHERNOVA, Z.I., tekhn.red.

[Mechanization and automation of technological processes in the manufacture of machinery] Mekhanizatsiia i avtomatizatsiia tekhnologicheskikh protsessov v mashinostroenii. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 334 p. (MIRA 13:7)

(Machinery industry--Technological innovations)
(Automation)

DEM'YANYUK, F.S.

PHASE I BOOK EXPLOITATION SOV/4718

Sovremennoye sostoyaniye i napravleniya razvitiya tekhnologii mashinostroyeniya i priborostroyeniya (Present State of the Manufacturing Processes in the Machine and Instrument Industries and Trends for Development) Moscow, Mashgiz, 1960. 563 p. 5,000 copies printed.

Ed.: Anatoliy Nikolayevich Gavrilov, Doctor of Technical Sciences, Professor; Managing Ed. for Literature on Machine Building and Instrument Construction (Mashgiz): N.V. Pokrovskiy, Engineer; Ed. of Publishing House: G.F. Kochetova, Engineer; Tech. Eds.: V.D. El'kind and A.Ya. Tikhanov.

PURPOSE: This book is intended for technical and scientific personnel in the machine and instrument industries and for students and teachers of schools of higher education.

COVERAGE: The book deals with current theory and practice in the manufacturing processes of the machine and instrument industries and includes discussions on trends for development. The physical nature of the processes and their technical-economic features and possibilities are considered. Particular attention is given to new and progressive processing (supersonic machining, electric machining, cold pressworking, precision casting, precision pressing, new methods of welding, etc.). The book consists of papers presented at the All-Union

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Scientific-Industrial Conference on "Advanced Machine and Instrument Manufacturing Processes," held in 1958. The papers have been revised in the light of recent developments in the field. A chapter is devoted to the automation and mechanization of the industry. Soviet and non-Soviet references accompany some of the chapters.

TABLE OF CONTENTS:

S/028/60/000/008/003/010
B013/B054

AUTHOR: Dem'yanyuk, F. S.

TITLE: Basic Principles of the Typification of Technological Processes in Machine Construction

PERIODICAL: Standartizatsiya, 1960, No. 8, pp. 12 - 23

TEXT: The author explains the basic principles of the typification of technological processes within the framework of progressive automation 14 in machine construction. Automatic one-tool equipment is mainly used in small-scale production. The greatest effect is, however, attained by multiple-tool machines which can work several types of single parts. Typified production processes and standardized equipment facilitate a quick adaptation of multiple-tool machines. 14 An example is the automatic production line designed by ENIMS for the stankostroitel'nyy zavod "Krasnyy proletariy" (Machine Construction Works "Krasnyy proletariy") for the treatment of more than 10 different types of gear wheels. The principal object of the establishment of technological processes is the production of single parts according to drawings at lowest expenditure

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of work and cost of production. It is necessary, therefore, to establish the expenditure of work which makes it possible to estimate objectively both the working method applied and the newly developed technological process. The author indicates principles of classification of single parts and factors determining the manufacturing operation (Table 1). A typified process means a principal schematic manufacturing operation of typified single parts of a class group. It comprises the clamping of the workpiece, the order of working operations, the types of devices, and the approximate expenditure of work for the manufacture of the single parts. On the basis of a schematic process it is possible to set up a concrete working process for a certain single part of the corresponding class group under given operational conditions. The following elements forming part of a typified technological process are necessary for every concrete process: a) standardized methods for the production of workpieces; b) equipment identical in dimensions and types for the treatment of single parts of a class; an exception is the equipment for the treatment of profiled surfaces; c) standardized clamping methods; d) identical course of the principal operations of mechanical treatment. Besides the elements mentioned, it is necessary to have methods of setting up optimum concrete production processes of single parts under given operational conditions. Fig. 1 shows a typical scheme for the working of medium-sized and large case parts. It is convenient to set up typified schematic processes on the basis of principal operations irrespective of secondary operations. Thus, such a process can comprise a greater number of single parts and reduce the number of working stages to a minimum. The working operations of single parts are studied closely. Model processes for the working of single parts can be set up on the basis of typified schematic processes. Thus, it is possible to comprise a greater number of single parts of different shape and dimensions in a small number of model processes, and to establish the limits of the expenditure of work for varying production volumes. The setting up of two processes marks the establishment of model processes: a simple process for a minimum production, and an optimum process for a large production volume (Fig. 2, Table 2). The lower and the upper limit of the expenditure of work is found for the two cases. The author describes an approximate determination of the expenditure of work (Figs. 3 and 4). He mentions papers by Professor A. P. Sokolovskiy. There are 4 figures, 2 tables, and 1 Soviet reference.

DEM'YANYUK, Foma Semenovich, doktor tekhn. nauk, prof.; DUBROVSKIY, Ye.V., red.; RAKITIN, I.T., tekhn. red.

[Problems of automation in the manufacture of machinery] Problema avtomatizatsii v mashinostroenii. Moskva, Izd-vo "Znanie," 1962. 46 p. (Novoe v zhizni, nauke, tekhnike. IV Seriia: Tekhnika, no.1)
(MIRA 15:6)

(Automation) (Machinery industry)

DEM'YANYUK, Foma Semenovich, prof.

[Technological fundamentals of automatic line production]
Tekhnologicheskie osnovy potochno-avtomatizirovannogo
proizvodstva. Moskva, Vysshaia shkola, 1965. 689 p.
(MIRA 18:3)

DEM'YANYUK, T.K., inzhener.

Utilization of heat from public-bath waste water. Gor.khoz.Mosk. 27 no.8:39-40 Ag '53. (MLRA 6:8)
(Moscow--Baths, Public) (Baths, Public--Moscow) (Hot water heating)

DEM'YANYUK, T.K.

DEM'YANYUK, T.; MALYSHEV, B., teplotekhnik; MIKHALEV, N., kand.tekhn.nauk; STOLPNER, Ye., nauchnyy sotrudnik.

Gas motor operated water-heater for bath houses. Zhil.-kom. khoz. 8 no.2:24-26 '58. (MIRA 11:2)

1.Glavnyy inzhener tresta ban' Lengorispolkoma (for Dem'yanyuk).. 2.Bank No.65 g. Leningrada (for Malyshev). 3.Leningradskiy nauchno-issledovatel'skiy institut Akademii kommunal'nogo khozyaystva (for Stolpner).

(Semiconductors)
(Remote control)

GENBOM, B.B., kand.tekhn.nauk; YEROKHOV, Yu.D.; DEM'YANYUK, V.A.

Determining the time and path for motor-vehicle passing. Avt.prom. 31 no.7:11-13 Jl '65. (MIRA 18:8)

1. L'vovskiy politekhnicheskiy institut.

DEMYASHEV, M. P.

USSR/Zooparasitology - Acarina and Insect-Vectors of Disease Pathogens.

Abs Jour : Ref Zhur - Biol., No 5, 1958, 19669

Author : Demin, A.P., Demyashev, M.P.
Inst : -
Title : Species Composition and Seasonal Variation of Flea Fauna on House Mice (Mus musculus Lin.) and on Common Field Mice (Microtus arvalis Pall.).

Orig Pub : Tr. Rostovsk.-n./D. gos. n.-i. protivochumn. in-ta, 1956, 11, 101-107

Abstract : In 1951-1955 899 fleas (10 species) were gathered from 9418 house mice and 1066 fleas (13 species) from 2988 common field mice. Animals were cought during all seasons of the year at populated points, on hay stacks and open points. In buildings the house mice comprised 99% of all rodents (those falling into traps constituted 5-10%). The abundance of fleas on mice ranged from

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USSR/Zooparasitology - Acarina and Insect-Vectors of Disease Pathogens. G-2

Abs Jour : Ref Zhur - Biol., No 5, 1958, 19669

0.03 to 0.2, on field mice from 0.2 to 0.6. On mice Leptopsylla segnis and Ceratophyllus mocrzeckyi predominated: on field mice Amphipsylla rossica and Ctenophthalmus breviatus. The variation of species composition and numbers of fleas on mice and field mice is described in detail in accordance with the seasons in different habitats. In mice in populated areas, the mice had fleas from susliks, field mice and other steppe rodents (in April-September up to 36% of the total number of fleas collected).

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S/120/60/000/01/036/051
E073/E335

AUTHORS: Vereshchagin, L.F. and Demyashkevich, B.P.

TITLE: Making of an Indicator Diagram for High-pressure Compressors

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, Nr 1, pp 118 - 122 (USSR)

ABSTRACT: A four-stage gas compressor built by the Swiss firm "Amsler", a laboratory compressor, a compressor for compressing air to pressures of 270 to 800 katm, described by B.H. Sage and W.H. Lacey (Ref 1) and a compressor for compressing gases up to 5 katm, described by B.A. Korndorf (Ref 2), are mentioned and also a single-stage gas compressor described by one of the authors (Vereshchagin) and Ivanov (Ref 4) for producing pressures up to 5 katm with a compression ratio of 100. Since the real compression cycle is considerably more complex than the theoretical picture, only an indicator diagram based on the pressure directly measured in the compressor will give a good picture of the processes taking place during the compression cycle. The installation consists of an electrically-driven single-stage

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E073/E335

Making of an Indicator Diagram for High-pressure Compressors

gas compressor, equipment for accurate measurement of the position of the rod, high-pressure valves, piping, packing and seals; a photograph of it is shown in Figure 1. In this article, only the main part of the installation is dealt with, namely, the head of the gas compressor and the measuring devices. The compression chamber is designed in the form of a multilayer vessel. A cross-sectional drawing of the head of the gas compressor is reproduced in Figure 2. The precision pair piston/elastic liner are both lapped to a high polish and in the assembled state the radial gap is 0.03 - 0.04 mm; the moving piston is sealed by means of an elastic steel liner of the system described by Vereshchagin and Ivanov (Ref 3). The pressures were measured by means of sensors fitted into a hole drilled into the head of the compressor. Sensors of three types were used, namely, piezo-quartz, induction, electronic sensor of the impeded glow discharge (Ref 4). Cross-sectional drawings of these are reproduced in Figures 3, 4 and 5, respectively.

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E073/E335

Making of an Indicator Diagram for High-pressure Compressors

Particularly, the electronic sensor of impeded glow discharge is very sensitive to small displacements of the mobile electrode and is suitable for more accurate study of the process of compression of gases in the compressor; in Figure 6, an indicator diagram is reproduced which was obtained by means of this sensor. There are 6 figures and 5 references, 4 of which are Soviet and 1 English.

ASSOCIATION: Institut fiziki vysokikh davleniy AN SSSR (Institute of Physics of High Pressures of the Ac.Sc., USSR)

SUBMITTED: November 24, 1958

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S/120/60/000/01/038/051
E192/E382

AUTHORS: Ivanov, V.Ye., Vereshchagin, L.F. and Demyashkevich, B.P.

TITLE: High-pressure Hydraulic Compressor Employing Oil and Water

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, Nr 1, pp 126 - 128 (USSR)

ABSTRACT: The compressor described is illustrated in Figure 1. It is designed for compressing large volumes of liquids to the pressures of 8 to 10 katm. It is a periodically operating machine in that one cycle is completed during each revolution of a crankshaft. The operating cycle is as follows. From a container, the "operating" liquid is admitted through the gland 9 into the annular space between the cylinder 8 and the throttle 7 . The liquid has the input pressure of about 30 atm and through three apertures in the throttle is admitted into the annular space formed by the rod 10 and the internal surface of the piston. When the piston is lowered, the liquid is admitted into the channel 6 through the apertures in the rod and results in the lifting of the

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S/120/60/000/01/038/051
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High-pressure Hydraulic Compressor Employing Oil and Water

valve 13 . The compression channel is filled thereby. As soon as the rod passes the lower dead point, the compression cycle is commenced. At the instant when the pressure in the compression chamber is several times higher than that behind the valve 12 the latter is opened and the compressed liquid is expelled. If the compressor operates with water it is necessary to lubricate the piston and the rod. This is done by employing a hypoid grease to the piston 6 and rod 10 and the tightening cylinders 14 . The performance of the compressor is illustrated in Figures 1 and 2. Curve 1 of Figure 2 shows the change of the compressor performance (in litres/min) as a function of the force applied, the input pressure being constant. Figure 3 illustrates the losses due to piston friction as a function of the pressure applied. Curve 1 of Figure 3 represents the hydrostatic pressure, while Curve 2 shows the force received by the rod 10 . The overall dimensions of the compressor (including the mounting frame and the electric motor) are:

Card2/3 length 1.5 m; width 0.8 m and height 1.5 m.

S/120/60/000/01/038/051
E192/E382

High-pressure Hydraulic Compressor Employing Oil and Water

There are 3 Soviet references and 3 figures.

ASSOCIATION: Institut fiziki vysokikh davleniy AN SSSR (Institute of Physics of High Pressures of the Ac.Sc.,USSR)

SUBMITTED: October 15, 1958

Card 3/3

21370

18.8200 1413, 1454, 1418, also 2108

S/126/61/011/004/020/023
E073/E535

AUTHORS: Ryabinin, Yu. N., Beresnev, B. I. and Demyashkevich, B. P.

TITLE: Change in the Magnetic Properties of Iron Deformed by Extrusion with a Liquid Under High Pressure

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.11, No.4, pp. 630-633

TEXT: Recent investigations of Bridgman and the authors of this paper have shown the effectiveness of the method of extrusion of metals with liquid under high pressure on changing the mechanical properties of metals. So far, no data were available on the mechanical properties of metals extruded by applying a degree of deformation which considerably exceeds the limit contraction in the neck of tensile test specimens. The work described in this paper was carried out to elucidate this problem. The method used was the same as described in an earlier paper (Ref.3). Since the upper limit of pressures was 10 000 kg/cm^2, successive extrusion was applied for obtaining larger degrees of deformation, i.e. metal that has already been deformed was used for producing specimens for

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Change in the Magnetic Properties... S/126/61/011/004/020/023
E073/E535

the next extrusion experiments. The extrusion was by means of dies with an entry cone of 15°, the pressure applied at each stage was approximately 6000 kg/cm^2, using as a working medium a mixture of kerosene (1/3rd) and transformer oil (2/3rds). The metal was then used for producing tensile test specimens. This enabled determining the mechanical properties of iron after various degrees of preliminary deformation. In addition polished sections were produced for studying the structure and also for measuring the microhardness along the cross-section. Pure commercial iron (C - 0.07%) was deformed in 15 passes to an extent of $S_f = \ln (F/f_o) = 3.88$ (F - initial cross-section of the blank, f_o - final cross-section of the rod). The limit plasticity of the iron in the annealed state, determined by tensile tests was $S_f=1.76$. Thus, it was possible to determine the mechanical properties of the metal at degrees of deformation which were 2.2 times as large as those corresponding to the limit plasticity under atmospheric pressure. The results have shown that with increasing preliminary deformation the strength of the metal increases but its ductility decreases. Fig.1 shows characteristic tensile test curves for

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specimens of commercial iron with preliminary deformations of S_f = 0, 0.784, 2.06 and 3.88 (curves 1 to 4 respectively), K, kg vs. $\Delta \ell$, mm. Fig.2 shows the changes in these characteristics and in the microhardness as functions of the preliminary deformation S_f. It can be seen that with increasing S_f the strength characteristics increase appreciably. Thus, the strength of iron can be increased from 35 kg/mm^2 (S_f = 0) to 98 kg/mm^2 (S_f = 3.88). The character of these dependences leads to the conclusion that although the intensity of work hardening decreases with increasing deformation, there is a possibility of further increasing the strength of the metal. Photographs of polished specimens show that during the process of deformation the ferrite grains stretch in the direction of flow of the material and there is a predominance of intracrystalline deformation right up to the highest values of S_f. Admixtures which in the annealed state are distributed along the grain boundaries are intensively broken up but remain distributed along the grain boundaries. There are 4 figures and 4 Soviet references.

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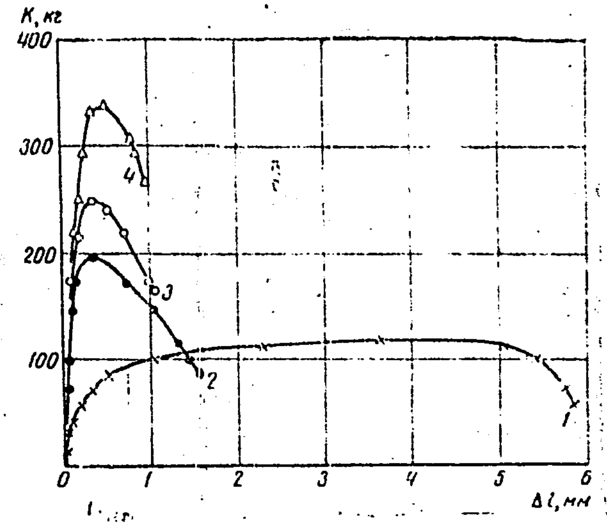
Change in the Magnetic Properties... S/126/61/011/004/020/023
E073/E535

ASSOCIATIONS: Institut fiziki vysokikh davleniy AN SSSR (Institute of High Pressure Physics AS USSR) and Institut fiziki metallov AN SSSR (Institute of Physics of Metals AS USSR)

SUBMITTED: August 6, 1960

Fig.1



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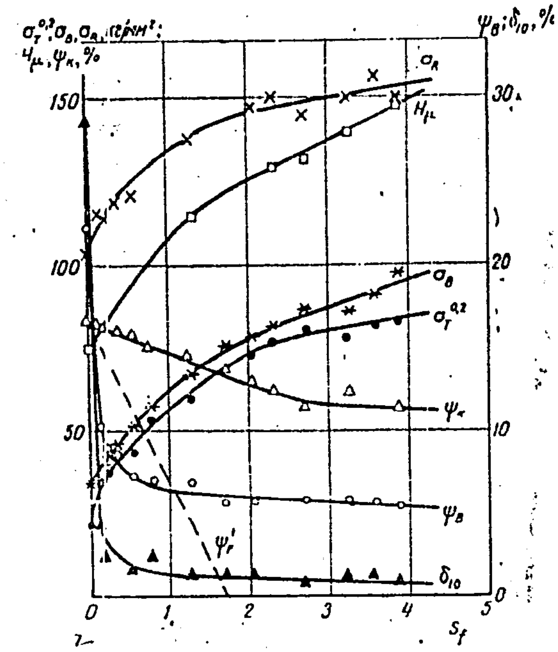
Change in the Magnetic Properties ... S/126/61/011/004/020/023
E073/E535

Fig.2



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ACC NR: AR6027473 SOURCE CODE: UR/0044/66/000/005/B103/B103

AUTHOR: Dem'yashkina, E. Ya.

TITLE: Rise of a straight line method which approximates the solution of a problem

SOURCE: Ref. zh. Matematika, Abs. 5B544

REF SOURCE: Tr. Izhevskogo matem. seminara. Izhevskiy mekhan. in-t, vyp. 1, 1963, 46-48

TOPIC TAGS: differential equation , difference equation , second order differential equation

ABSTRACT: The author finds that the exact solution of a system of ordinary differential equations approximates the solution of the equation for an infinite cylinder

$$\frac{\partial^2 u}{\partial x^2}+\frac{\partial^2 u}{\partial y^2}+cu-\frac{\partial u}{\partial t}=f(x, y, t).$$

with the following initial and boundary conditions:

$$0<t<\infty;\ 0<x<a;\ 0<y<b,$$

(c is a constant). The approximating system of equations is obtained by substituting the derivatives of x and y in the above equation, with finite differences on straight lines parallel to the x and y axes. [Translation of abstract] Ya. Alikhashkin

SUB CODE: 12 UDC: 518:517.944/.947

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ACC NR: AR6035021 SOURCE CODE: UR/0044/66/000/008/B108/B108

AUTHOR: Dem'yashkina, E. Ya.

TITLE: Approximate solution of a problem by the method of lines

SOURCE: Ref. zh. Matematika, Abs. 8B533

REF SOURCE: Dokl. i soobshch. nauchn. konferentsiy fiz.-matem. i yestestv. fak. Udmurtsk. gos. ped. in-t. Izhevsk. 1965, 29-35

TOPIC TAGS: approximate solution, differential equation, line method, boundary point set

ABSTRACT: The differential equation

$$\sum_{i=1}^{n} a_i(x_0)\frac{\partial^2 v(x)}{\partial x_i^2}+c(x_0)v(x)-\frac{\partial v(x)}{\partial x_0}=f(x) \quad (1)$$

$$(a_i(x_0)>0;\ c(x_0)<0)$$

is investigated under conditions

$$v(x)|_S=\varphi(x),$$
$$v(x)|_{x_0=0}=\psi(x^1), \quad (2)$$

$$(x=(x_0,\ x_1,\ \ldots,\ x_n),\ x^1=(x_1,\ x_2,\ \ldots,\ x_n))$$

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UDC: 518:517.91/.94

ACC NR: AR6035021

in (n+1)-dimensional parallelepiped $D: 0 < x_l < d_l \ (l = 0, 1, \ldots, n)$; S is the closure of the set of boundary points D for which $x_0 \neq 0$ and $x_0 \neq d_0$, excluding the points of plane $x_0 = 0$. The approximate solution of problem (1)—(2) is sought on the straight lines at which hyperplanes intersect

$$x_l = (x_l)_{k_l} = k_l h_l$$

$$\left(h_l = \frac{d_l}{m_l + 1}, \ k_l = 0, 1, \ldots, m_l + 1; \ l = 1, \ldots, n\right).$$

The system of equations which appears as a result of the transformation of the differential-difference scheme which corresponds to the problem (1)—(2) is solved by the method of variation of arbitrary constants. The convergence of the obtained solution to the solution of problem (1)—(2) is proved. I. Shelikhova. [Translation of abstract] [DW]

SUB CODE: 12/

Card 2/2

DEMYATKOVSKAYA, [illegible]. V.

Clinical aspect of infectious hemorrhagic fever. Moskva, Iernez, gor. gosp. 1951.

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000310110020-3"

DEMYDKO, Petr Makarovich, nauchn. sotr.; KOSHOVYY,V.I.[Koshovyi,V.I.], red.

[What the advantages of soybean are] Chym vyhidna soia. Kharkiv, Vyd-vo "Prapor," 1964. 30 p. (MIRA 18:1)

1. Sumskaya, sel'skokhozyaystvennaya issledovatel'skaya stantsiya , Sumskaya oblast'(for Demydko).

ULASEVICH, P.S.; DEM'YENEVA, L.F.

Diagnostic value of Huddleson's reaction in human brucellosis.
Zhur. mikrobiol. epid. i immun. no.12:79 D '55. (MLRA 9:5)

1. Iz Respublikanskoy protivobrutselleznoy stantsii Ministerstva zdravookhraneniya BM ASSR (glavnyy vrach S.I. Didoshina)
(BRUCELLOSIS, diagnosis,
Heddleson's reaction)

DEMYKIN, G. N.

Bees

Bees in greenhouses. Pchelovodstvo 30, No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

Demykin, K. V.

Mechanization of Calculations in Metallurgical Research. E. M. Zainitseva, K. T. Suvorov, K. V. Demykin, and A. L. Bridno. (Stal', 1955, (12), 1124-1129). [In Russian]. This is a contribution to a conference held to discuss experience in the use of mechanized accounting and computing methods in the iron and steel industry generally. It gives details of some techniques involved and examples of successful application in the steel industry, with special reference to rail production.—S. K.

4

DEMYKIN, K. V.

Distr: 4E2c

19

Change in hydrogen content in metal and slag during the melting of steel in large open-hearth furnaces. N. I. Shirokov and K. V. Demykin. *Staleplavil. Proizvodstvo* (Moscow: Metallurgizdat) *Sbornik* 1956, No. 1, 23-43; *Referat. Zhur., Met.* 1956, Abstr. No. 9932.—Thick basic slags help to increase H. During the first 20-30 min. of boiling, H usually decreases, and afterwards continuously increases until complete deoxidation, reaching or even exceeding the value it had at the start of pure boiling. During the holding of the melt, the H decreases sharply for carbon steels and slightly for chrome steel. Degasification of metal in 185-ton is the same as in 380-ton furnaces.

A. N. Pestoff

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DEMYKIN, K.V.

3

Making rail steel from low-manganese iron without addition of ferromanganese during the boil. E. Ya. Zarvin, N. S. Mikhailets, and K. V. Demykin (Met. Combine, Kuznetsk). Stal' 16, No. 5, 431-7 (1956).—The question whether the addn. of 1400 kg. Fe-Mn after slagging off a 370-ton heat melting down at 0.15% Mn may be omitted was answered by a detailed study of 140 heats. The omission is justified, since it lowers slagmaking time from 46 to 37 min., cuts down 3 tons of ore per heat, increases the rate of C elimination during the building of the slag from 0.13 to 0.18% C/hr., and saves about 1 ton of Fe-Mn per heat. The practice does not affect S removal or the quality of steel, demonstrating the suitability of using low-Mn irons.

I. D. Gat

Metall

ZARVIN, Ye.Ya., kand. tekhn. nauk; DEMYKIN, K.V., inzh.; VASIL'YEV, A.N., inzh.

Sulfur balance in 370-ton and 190-ton converter smelting of low-manganese and ordinary pig iron. Izv. vys. ucheb. zav.; chern. met. no.4:23-35 Ap '58. (MIRA 11:6)

1. Sibirskiy metallurgicheskiy institut i Kuznetskiy metallurgicheskiy kombinat.
(Bessemer process) (Sulfur)

23618
S/148/60/000/012/004/020
A161/A133

18.3200

AUTHORS: Revenko, V. V., and Demykin, K. V.

TITLE: On the probelm of continuous oxidization of cast iron elements by oxygen

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no. 12, 1960, 39 - 45

TEXT: Oxidation of iron by blowing oxygen in the spout of a blast furnace and cupola, in ladles and mixers had already been tried. The successful tests in steel production of blowing oxygen through barrel furnaces (Ref. 5: N. N. Lazarev, Stal', 1957, no. 5) has indicated practically possible ways of continuous steel production, but blowing in the barrel furnace is not possible with a strong blast because of metal and slag splashes, intense wear of lining and other reasons. In experiments described in this article oxygen was blown through the falling metal stream out of contact with the furnace walls (Fig. 1). The method is suggested for the treatment of iron before charging it into open-hearth furnaces, and it is expected that the productivity of an open-hearth furnace would be raised 25 - 40%.

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S/148/60/000/012/004/020
On the problem of continuous oxidization of... A161/A133

The shaft furnace illustrated may be considered the first stage in the continuous steel making process. The 1.23 m high test furnace was lined with fireclay brick, the well was lined with magnesite; had a water-cooled copper caisson (5 in Fig. 1) in the top containing a fireclay insert (6). Up to 100 kg iron was treated in each of the 16 test heats, using oxygen at 15 atm pressure. The first experiment series with bottom blowing gave results which were not completely satisfactory. In the second series combined bottom and top blowing proved better and the oxygen stream from the top had a better pulverizing effect on the metal, but it was not possible to use top blowing over 30% of the total because the metal splashed too strongly before the pouring spout. The temperature of the metal before entering the furnace was 1,200 - 1,300°C and increased by 200 - 300°C during blowing. In the third series it was attempted to determine the effect of the metal jet fall height at top blowing only. A uniform pouring rate was maintained by the use of an intermediate ladle (10, Fig. 1) and constant iron level in, but it was not possible to increase the furnace height further than up to 1.7 m, the difference not being noticeable. As the quantity of oxidized impurities was only half compared with the second series, it was obvious that the ef-

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fect of bottom blowing had been underestimated. Fig. 3 shows the chosen furnace head design. The intake opening 30 mm in diameter and 65 mm in height was made in fireclay brick, and the brick was installed on the water-cooled caisson without the initial insert. The oxygen pressure in the reducer for bottom and top blowing was 14 - 15 atm. The variations of gas composition could not be determined because the process was too short. The high iron content in slag and brownish smoke indicated intense oxidization of iron in the process. The use of a container in the furnace shaft bottom seems advisable in which metal could react with ferrous slag. Conclusions: The oxidation of carbon in a falling iron stream is possible to 24 - 27%, of Si and Mn to 80%, and of P to 30 - 40%. Sulfur is eliminated to 30 - 40%. A higher degreee of oxidization of elements is possible by the application of a space in the bottom furnace shaft portion, and of an additional pulverizing stage. The effect of the metal falling height must be studied on a larger scale than in these experiments. The burning of iron can be reduced by holding metal under slag in the additional space in the furnace shaft bottom. There are 3 figures, 4 tables and 5 references: 4 Soviet-bloc and 1 non-Soviet bloc.

23618
S/148/60/000/012/004/020
A161/A133

On the problem of continuous oxidization of...

ASSOCIATION: Sibirskiy metallurgicheskiy institut (Siberian Metallurgical Institute)

SUBMITTED: March 25, 1960

Card 4/5

DEN, G.N., inzh.

Fluid flow in a centrifugal impeller with radial blades. Energomashinostroenie 4 no.4:19-22 Ap '58. (MIRA 11:7)
(Impellers--Fluid dynamics)

DEN, G. N., Cand Tech Sci -- (diss) "Investigation of the performance of diffusers in stationary centrifugal compressor machines." Leningrad, 1960. 11 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Leningrad Polytechnic Inst im M. I. Kalinin); 150 copies; price not given; (KL, 51-60, 118)

S/114/60/000/011/005/011
E194/E484

26.2110

AUTHOR: Den, G.N., Engineer

TITLE: The Influence of the Relative Width of the Flow Part on the Operation of a Centrifugal Stage With Bladeless Diffuser

PERIODICAL: Energomashinostroyeniye, 1960, No.11, pp.20-23

TEXT: A number of works have shown that selection of the relative width of the flow part of a centrifugal compressor often greatly influences the size and speed of the machine and approximate relationships have been given for the pressure efficiency of the stage as a function of the relative width. The efficiency is reduced when the relative width is small because of the increasing effect of frictional loss, the efficiency is reduced at high relative width because of increasing eddy losses. This article studies the influence of the relative width of the flow part of a centrifugal stage consisting of a runner with a bladeless diffuser on the gas-dynamic characteristics of stage and the runner and also considers the influence of the relative width of a bladeless diffuser on the flow of gas and loss of energy in it. The flow part of the stage used is illustrated diagrammatically in Fig.1. The stage

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S/114/60/000/011/005/011
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The Influence of the Relative Width of the Flow Part on the Operation of a Centrifugal Stage With Bladeless Diffuser

employs axial inlet. Operating conditions of the stage are controlled by an annular valve located beyond the discharge guide vanes and discharge radial diffuser which imitates the inlet to the next stage. This design contains no elements that might disturb the axial symmetry of the flow through the runner and diffuser. Tests were made with five variants of the flow part, the main characteristics of which are given in a table. The ratio of breadth of runner duct to runner diameter ranged from 0.0734 to 0.0197. Measurements of the distribution of static pressure showed that axial flow was symmetrical in the diffuser. The compressor stage was driven by a geared electric motor which was first calibrated against a hydraulic brake. The experimental arrangements and procedure are described in some detail. The gas-dynamic characteristics of a stage consisting of the runner diffuser and guide vanes are plotted in Fig.2a from which it will be seen that the optimum stage efficiency is obtained with the ratio of gas speed to runner peripheral speed of 0.25 to 0.32. Smaller ratios of channel breadth to runner diameter correspond to larger

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values of the ratio of gas to peripheral speed. Dimensionless characteristics of a stage consisting of runner and diffuser are shown in Fig.2b and dimensionless characteristics of the runner in Fig.2B. It will be noticed that decreasing the ratio of the channel breadth to runner diameter has much less influence on the runner efficiency than on the efficiency of the stage overall. From the tests a study may be made of the influence of the relative width of the flow part on the operation of a bladeless diffuser of a centrifugal stage. A graph of the mean angle of flow across the width of the ducts at the start of the diffuser as function of the discharge coefficient of the runner is plotted in Fig.3. In investigating the loss coefficient of a diffuser it is convenient to use the concept of an equivalent conical diffuser which has the same inlet and discharge areas as the bladeless diffuser studied and is of length equal to the mean path of the bladeless diffuser. Conversion equations are derived. Fig.4 shows the relationship between the loss angle of the bladeless diffusers studied as function of the angle of expansion of the

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equivalent diffusers, calculated by the formulae derived. The experimental points corresponding to five bladeless diffusers lie fairly closely around a single curve which shows that the concept of an equivalent conical diffuser is justified. Fig.5 shows graphs of the loss factor of a bladeless diffuser as function of the angle of flow at the start of the diffuser. The results obtained are discussed. The velocity distributions observed in bladeless diffusers are plotted in the graphs of Fig.6 with various runner operating conditions. It is concluded that the investigations show that the optimum efficiency of the stage decreases as the relative width of the flow part is reduced and that by using the concept of the equivalent conical diffuser it is possible to recalculate the loss factors of a bladeless diffuser to the conditions of diffusers of different relative widths. There are 6 figures, 1 table and 6 Soviet references.

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26.2141
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AUTHOR: Den, G.N., Engineer

TITLE: The turbulent proximate layer at the wall of the bladeless nozzle of the centrifugal compressor

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Energetika, no. 5, 1961, 89-96

TEXT: A bladeless nozzle behind the working runner has, as a rule, a width equal to the width of the runner. The outlet jet has radial and peripheral components and is non-uniform. The solution of a turbulent gas flow with a non-uniform profile of the inlet velocities would be complex. The following admissible simplifications are introduced by assumption: a) The uniformity of the inlet jet to the nozzle along its width; b) a potential motion outside the proximate layer; c) a symmetrical flow with respect to the axis of the nozzle; d) the non-compressibility of the gas; e) it is assumed

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in the equations that the parts of the tensor of turbulent stresses as cited by L.G. Loytsyanskiy (Ref. 1: Mekhanika zhidkosti i gaza (Mechanics of Liquid and Gas) GITTL, M., 1957) τ_r, τ_φ, τ_z, and $\tau_{r\varphi}$ are small compared with those having $\tau_{\varphi z}$ and τ_{zr}. The centralized turbulent gas flow at the proximate layer of the nozzle (Fig. 1) is then given by the equations

$$u\frac{\partial u}{\partial r} + w\frac{\partial u}{\partial z} - \frac{v^2}{r} = -\frac{1}{\rho}\frac{dp}{dr} + \frac{1}{\rho}\cdot\frac{\partial\tau_{zr}}{z} \quad (1)$$

$$u\frac{\partial v}{\partial r} + w\frac{\partial v}{\partial z} + \frac{uv}{r} = \frac{1}{\rho}\cdot\frac{\partial\tau_{\varphi z}}{\partial z}, \quad (2)$$

$$\frac{\partial u}{\partial r} + \frac{\partial v}{\partial z} + \frac{u}{r} = 0. \quad (3)$$

At the solid wall with z = 0, u = v = w = 0 at $r \geqslant r_0$; at the ex-

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ternal boundary of the layer with $r \gg r_0$,

$$u = U \text{ при } z = \delta_r, \quad v = V \text{ при } z = \delta_\varphi. \qquad (4)$$

In the potential center

$$-\frac{1}{\rho}\frac{dp}{dr} = U\frac{dU}{dr} - \frac{V^2}{r}, \qquad (5)$$

$$rV = r_0 V_0. \qquad (6)$$

where V_0 has the value of the peripheral velocity at $r = r_0$. Eqs. (1) - (3) hold not only for the proximate layer, but for the whole of the flow, if the half-width of the nozzle $b \ll r_0$, and if in the Reynold's equations it is admissible to neglect the parts of the order $(\frac{b}{r_0})^2$, small compared with the parts of the order of unity. After some transformations and integrating with respect to z from

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the wall to the external boundary, Eqs. (1) and (2) take the form of

$$\frac{d\delta_r^{**}}{dr} + \delta_r^{**}\left[\frac{U'}{U}(2 + H) + \frac{1}{r}\right] - \frac{V^2}{U^2}\frac{\delta_\varphi^*}{r} = \frac{\tau_{zr}}{U^2}\bigg|_{z=0}, \qquad (7)$$

$$\frac{d\delta_{r\varphi}^{**}}{dr} + \delta_{r\varphi}^{**}\frac{(rU)'}{rU} = \frac{\tau_{\varphi z}}{\rho UV}\bigg|_{z=0}, \qquad (8)$$

where

$$\delta_r^{**} = \int_0^{\delta_\varphi}\frac{u}{U}\left(1 - \frac{u}{U}\right)dz; \quad H = \delta_r^*/\delta_r^{**},$$

$$\delta_r^* = \int_0^{\delta_r}\left(1 - \frac{u}{U}\right)dz; \quad \delta_{r\varphi}^{**} = \int_0^{\varepsilon_\varphi}\frac{u}{U}\left(1 - \frac{v}{V}\right)dz; \quad \delta_\varphi^* = \int_0^{\varepsilon_\varphi}\left(1 - \frac{v^2}{V^2}\right)dz. \qquad (9)$$

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To establish the link between Eqs. (7) and (8), it is assumed that the distribution of the velocities at the proximate layer is described by means of the stepped profiles

$$\frac{u}{U} = a\left(\frac{U z}{\nu}\right)^m; \quad \frac{v}{V} = b\left(\frac{V_* z}{\nu}\right)^m \tag{10}$$

where $\rho U^2 = \tau_{zr}|_{z=0}$; $\rho V_*^2 = \tau_{\varphi z}|_{z=0}$.

Denoting $\frac{V}{U} = \varepsilon$ and $\frac{\delta_\varphi}{\delta_r} = K$, and referring all the linear quantities to r_0, and U and V to U_0 and V_0 respectively, it follows from Eqs. (7) and (8) that

$$\delta_r^{**\prime} + \delta_r^{**}\left[\frac{U'}{U}(2+H)+\frac{1}{r}\right] - \varepsilon^3\frac{\delta_\varphi^{*}}{r} = \zeta\left(\delta_r^{**}U\right)^{\frac{-2m}{m+1}}\left(\frac{U_0 r_0}{\nu}\right)^{\frac{-2m}{m+1}}, \quad (11) \qquad (11)$$

$$\delta_{r\varphi}^{**\prime} + \delta_{r\varphi}^{**}\frac{(rU)'}{rU} = \varepsilon K^{\frac{2m^{*}}{m+1}}\zeta\left(\frac{\delta_{r\varphi}^{**}}{r}\right)^{\frac{-2m}{m+1}}\left(\frac{V_0 r_0}{\nu}\right)^{\frac{-2m}{m+1}}, \quad (12) \qquad (12)$$

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For the moderate Reynold's numbers, for a width of the duct 2b, m = $\frac{1}{7}$

$$\delta_r^{**\prime} + \delta_r^{**}\left[\frac{U'}{U}(2 + H) + \frac{1}{r}\right] - \varepsilon^2 \frac{\delta_\varphi^*}{r} = \zeta(\delta_r^{**} U)^{-\frac{1}{4}} \left(\frac{U_o r_o}{\nu}\right)^{-\frac{1}{4}}, \qquad (13)$$

$$\delta_{r\varphi}^{**\prime} + \delta_{r\varphi}^{**}\frac{(rU)'}{rU} = \varepsilon K^{\frac{1}{28}} \zeta\left(\frac{\delta_{r\varphi}^{**}}{r}\right)^{-\frac{1}{4}} \left(\frac{V_o r_o}{\nu}\right)^{-\frac{1}{4}}. \qquad (14)$$

with regard to variation of the amount of motion in the nozzle, Eq. (15) could be integrated

$$\delta_{r\varphi}^{**} = \left\{\frac{5}{4}\left(\frac{r_0 V_0}{\nu}\right)^{-\frac{1}{4}} \frac{\int_1^r \zeta\varepsilon K^{\frac{1}{28}} r^{\frac{1}{4}} (rU)^{\frac{5}{4}} dr}{(rU)^{\frac{5}{4}}}\right\}^{\frac{4}{5}}. \qquad (15)$$

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Assuming that the adverse influence of the proximate layer is small, i.e. that the nozzle is wide, then

$$U = \frac{1}{r} \qquad (16)$$

also ε = constant and can be taken out of the integral as well as $\zeta K^{\frac{1}{28}}$, and

$$\delta^{**}_{r\varphi} = \zeta^{\frac{4}{5}} \varepsilon^{\frac{3}{5}} (r^{\frac{5}{4}} - 1)^{\frac{4}{5}} Re^{-\frac{1}{5}} K^{\frac{1}{35}}, \text{ where } Re = \frac{r_o U_o}{\nu}. \qquad (17)$$

The quantity $\delta^{**}_{r\varphi}$ is the criterion for the loss of the sum of the moment of the amount of motion of gas in the nozzle M. For a nozzle with the constant width 2 b,

$$M = M_o \left(1 - \frac{\delta^{**}_{r\varphi}}{b}\right), \qquad (18)$$

where M_o is the value of the amount of motion at $r = r_o$. Using the usual notation of the angle of incidence into the nozzle α_3 = arc ctg ε and by c_u, the value of the peripheral velocity, and denoting by index the quantities referred to the inlet,

$$\frac{c_u}{u_2} = \frac{c_{u3}}{u_2}\left\{\frac{r_3}{r} - \frac{\xi^{\frac{4}{5}}(\mathrm{ctg}\,\alpha_3)^{\frac{3}{5}}\left[1 - \left(\frac{r_3}{r}\right)^{\frac{5}{4}}\right]^{\frac{4}{5}}}{\frac{b_3}{r_3}\left(\frac{u_2 r_3}{\nu}\right)^{\frac{1}{5}}\left(\frac{c_{r3}}{u_2}\right)^{\frac{1}{5}}}\right\} \quad (19)$$

Here u_2 is the peripheral velocity of the runner, c_{r3} - the mean value of the inlet component velocity into the nozzle. The mean value of the angle of flow in the nozzle is given by

$$\mathrm{ctg}\,\alpha = \mathrm{ctg}\,\alpha_3\left\{1 - \frac{\xi^{\frac{4}{5}}(\mathrm{ctg}\,\alpha_3)^{\frac{3}{5}}\left[1 - \left(\frac{r_3}{r}\right)^{\frac{5}{4}}\right]^{\frac{4}{5}}}{\frac{b_3}{r_3}\left(\frac{u_2 r_3}{\nu}\right)^{\frac{1}{5}}\left(\frac{c_{r3}}{u_2}\right)^{\frac{1}{5}}}\cdot\frac{r}{r_3}\right\}. \quad (20) \quad (20)$$

An empirical expression

$$\operatorname{tg}\alpha = \operatorname{tg}\alpha_3 + \frac{\lambda}{8}\,\frac{r - r_3}{b_3},$$

where λ - coefficient of friction for the straight pipes, gives the same result as (20). With regard to the numerical solution of the equation of the amount of motion, if m = 1/7, and using (9) and (10),

$$\delta_{\varphi}^{*} = (1 + H)\,\delta_r^{**\frac{1}{8}}\,\delta_{r\varphi}^{**\frac{7}{8}}. \qquad (21)$$

(21)

Assuming ζ = constant, and denoting

$$\frac{\delta_r^{**\frac{5}{4}}\,\mathrm{Re}^{\frac{1}{4}}}{\zeta} = Z;\quad r^{\frac{5}{4}} - 1 = x \text{ и } \varepsilon^{2.525}K^{0.025} = \beta,$$

from (13), (17), (21) and (16),

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$$\frac{dZ}{dx} = 1 + (1 + H)\frac{Z + \beta x\left(\frac{Z}{x}\right)^{0,3}}{1 + x}, \quad (22)$$

(22)

where Z = 0 at x = 0. The Eq. (22) was solved by integration using Adams' method as cited by A.N. Krylov (Ref. 5: Lektsii o priblizhennykh vychisleniyakh (Lectures on Approximate Calculations), GITTL M., 1950), at H = 1.4 and for some values of parameter ß. The solution near x = 0 was obtained in steps of x. To obtain the accuracy for values of H and of the breaking-off point of the proximity layer, the Grushvits method was used as cited by G. Shlikhting (Ref. 3: Teoriya pogranichnogo sloya (Theory of Proximity Layer), IL, M., 1956). Experiments show as quoted in G.N. Den (Ref. 2: Issledovaniye aerodinamiki potoka v tsentrobezhnykh kompressornykh mashinakh (Research on the Aerodynamics of a Stream in Centrifugal Compressors), Tp. NZL, vyp. I, TSBNTI, M., 1957) that in a bladeless nozzle situated behind the centrifugal runner, the breaking-

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-off is expressed in terms of the variation of the direction of the radial component of the velocity. The peripheral component of the velocity is not affected. An equation for the determination of Grushvits' parameter η in the accepted form could be written as

$$\frac{d}{dx}\left[\frac{\eta}{(1+x)^{\frac{8}{5}}}\right]=\frac{4}{5}\zeta^{\frac{4}{5}}\mathrm{Re}^{-\frac{1}{5}}A\frac{\frac{B}{A}-\eta}{Z^{\frac{4}{5}}(1+x)^{\frac{9}{5}}}, \tag{23}$$

here for $x = 0$, $\eta = 1$. For $x < 10^{-3}$, η could be obtained from (23)

$$\eta=\left(1-\frac{B}{A}\right)e^{-J}+\frac{B}{A}. \tag{24}$$

where

$$J=4\zeta^{-\frac{4}{5}}\mathrm{Re}^{\frac{1}{5}}Ax^{\frac{1}{5}}.$$

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In accordance with G. Shlikhting (Ref. 3: Op.cit.) the constants are $A = 0.00894$, $B = 0.00461$. Eq. (23) could also be integrated according to Adams' method. To begin the calculation (24) was used, the interval for the integration being taken as equal to $0.1 \cdot 2^{-8}$ and continually doubled along with the calculation. 32 values of x were calculated until the integration interval $\Delta x = 0.05$ could be used. The breaking-off value of η was taken as 0.8. After η was found, the value of H was found from an expression cited by G. Shlikhting (Ref. 3: Op.cit.)

$$\eta = 1 - \left[\frac{H - 1}{H(H + 1)}\right]^{H-1}$$

and the second integration of (22) was made. The calculation for β from 0 to 10^2, corresponding to ε from 0 to 6 show that the accuracy of H does affect the values of Z in the interval at the point of breaking-off only, and does not influence the value of η, thus

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the second integration of (22) is not necessary in practice. The decreasing of the angle α_3 for the numbers of Re leads to the displacement of the breaking-off point to the beginning of the nozzle. The decreasing of $\frac{b_3}{r_3}$ leads to the removing of the breaking-off point from the beginning of the nozzle and to the disappearance of the breaking. There is no breaking at the low values of ß at $r < 1.7$ which corresponds to the maximum value of r. With the strict axial direction of the flow in the nozzle there will be a disturbance of the axial symmetry of the flow and the formation of the cavities. The criterion of the appearance of the breaking-off is given by

$$\Gamma = \frac{\delta_r^{**}}{\rho U^2} \cdot \frac{dp}{dr} \left(\frac{\delta_r^{**} U}{\nu} \right)^{\frac{1}{4}} = -(1 + \varepsilon^2) \zeta \frac{Z}{1 + x} \approx -0{,}06 \tag{25}$$

(25)

The thickness of the proximate layer in a nozzle is given by the

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expression

$$\delta_r = \delta_r^{**}\frac{m+1}{m}(2m+1) \simeq 10\,\delta_r^{**}.$$

The author then discusses the approximate solution of the equation of motion at $\varepsilon < 1$. Eq. (11) could be solved using a simple approximate method, reducing the determination of δ_r^{**} to the solution of a transcendental algebraic equation of function $K(r, \varepsilon)$. This method has proved to be effective at $\varepsilon < 1$. From (9) and (10) it is possible to obtain $\delta_\varphi^{**} = (1 + H)\,K\delta_r^{**}$, then Eq. (13) takes the form of

$$\delta_r^{**\prime} = \delta_r^{**}\left[(2+H)\frac{U'}{U} + \frac{1}{r} - \varepsilon^2\frac{H+1}{r}K\right] = \zeta\,\mathrm{Re}^{-\frac{1}{4}}(\delta_r^{**}U)^{-\frac{1}{4}}. \qquad (26)$$

(26)

(27)

Introducing the notation

$$(2+H)\frac{U'}{U} + \frac{1}{r} - \varepsilon^2\frac{H+1}{r}K = \frac{X'}{X}, \qquad (27)$$

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